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## [CLAIMS]

1. Method for creating at least one printing master comprising the steps of :
   - providing a printing master precursor,
   - selectively creating ink-carrying and non ink-carrying areas on said printing master precursor by means of an ink jet printing system printing dots on the printing master precursor wherein the position of the dots is controlled with an increment that is less than the size of the smallest dot,

   characterised in that the position of the dots is controlled by a sub-dot phase modulation error diffusion algorithm.

2. The method according to claim 1 wherein the printing master is a planographic printing plate and wherein the printed dots generate hydrophobic and hydrophilic areas.

3. The method according to claim 1 wherein the error diffusion algorithm comprises a imprint function dynamically influencing the threshold values in the error diffusion algorithm in accordance with previous output quantisation determinations to selectively control likelihood of whether the next pixel will exceed the threshold.

4. The method according to claim 1 wherein the error diffusion algorithm takes into account the coverage percentage of the pixels caused by the printed dots.

5. The method according to claim 1 wherein the inkjet printing system is a multilevel inkjet printing system.

6. The method according to claim 5 wherein the inkjet printing system uses at least two different dot sizes.

7. The method according to claim 1 wherein the position of the dots can be controlled according to the pixel grid generated by the addressability of the inkjet printing system and the area of the smallest dot correspond to the area of 3x3 pixels of the pixel grid.

8. The method according to claim 1 wherein at least two printing masters are made and wherein the error diffusion algorithm is further limited by use a constrained correlation

frequency modulation halftoning technique wherein the placement of dots is restricted by a multilevel error diffusion process applied to a scalar value.

9.  An inkjet printing master made by the method according to claim1.

10.  An apparatus for making at least one printing master comprising :
- a device for providing a printing master precursor
- a inkjet printing system for printing dots on the printing master precursor, selectively creating ink-carrying and non ink-carrying areas on the printing master precursor thereby generating the printing masters and for controlling the position of the dots with an increment that is less that the size of the smallest dot,
wherein in the apparatus comprises a processing device for performing a sub-dot phase modulation error diffusion algorithm for controlling the position of the dots.